

What is claimed is:

1. A coated brake disk comprising:
a brake disk substrate, said substrate made of a Titanium alloy;
and
5 a coating overlying at least a portion of said substrate, said coating comprising a first coating layer having an amorphous structure and a second coating layer comprising a coating material selected from the group of coating materials consisting of a metal nitride, a metal oxide, a metal boride and a metal carbide.
- 10 2. A coated brake disk as recited in claim 1 wherein said metal nitride is a nitride of an active metal selected from the group of active metals consisting of titanium, chromium, zirconium, aluminum and alloys thereof.
3. A coated brake disk as recited in claim 1 wherein said metal
oxide is an oxide of an active metal selected from the group of active metals
15 consisting of titanium, chromium, zirconium, aluminum and alloys thereof.
4. A coated brake disk as recited in claim 1 wherein said metal
boride is a boride of an active metal selected from the group of active metals
consisting of titanium, chromium, zirconium, aluminum and alloys thereof.
5. A coated brake disk as recited in claim 1 wherein said metal
20 carbide is a carbide of an active metal selected from the group of active metals consisting of titanium, chromium, zirconium, aluminum and alloys thereof.

6. A coated brake disk as recited in claim 1 wherein said a first coating layer comprises an amorphous metal, said metal being selected from the group of metals consisting of titanium, chromium, zirconium, aluminum and alloys thereof.

5 7. A coated brake disk as recited in claim 1 wherein said Titanium alloy is selected from the group of Titanium alloys consisting of Titanium – 6 Aluminum – 4 Vanadium and Titanium – 6 Aluminum – 2 Tin – 4 Molybdenum – 2 Zirconium.

8. A coated brake disk as recited in claim 1 wherein said brake
10 disk is for use on a motorcycle.

9. A method for manufacturing a coated brake disk, said method comprising the steps of:
providing a brake disk substrate made of a Titanium alloy; and
coating said substrate with layer of metal having an amorphous
15 structure and a layer comprising a coating material selected from the group of coating materials consisting of a nitride of said metal, an oxide of said metal, a boride of said metal and a carbide of said metal.

10. A method as recited in 9 wherein said coating step comprises the steps of:

5 providing a deposition apparatus comprising at least two linear deposition sources with each said deposition source lying parallel to an axis and each said deposition source being a source of said metal, a nonmetal source and a fixture;

engaging said substrate with said fixture;

rotating said fixture in a planetary movement about said axis;

and

10 operating said deposition sources to deposit said metal onto said substrate, the steps of rotating, and operating to occur simultaneously.

11. A method as recited in claim 10 wherein each said linear deposition source is a cathodic arc source.

15 12. A method as recited in claim 10 wherein said fixture comprises a plurality of poles mounted on a plate.

13. A method as recited in claim 12 wherein each said pole is oriented on said plate to be substantially parallel to said axis.

20 14. A method as recited in claim 13 wherein said fixture comprises three said poles and each said pole is spaced at an equal distance from the other said poles.

15. A method as recited in claim 13 wherein said fixture further comprises a plurality of spacers for spacing a plurality of substrates on each said pole.

16. A method as recited in claim 9 wherein said coated brake disk is for use on a motorcycle.

17. A coated brake disk comprising:
a brake disk substrate, said substrate made of a Titanium alloy
5 and formed with at least one substantially flat surface for contacting a
brake pad during braking; and
a coating overlying surface, said coating comprising a first
coating layer of a metal and a second coating layer comprising a
coating material selected from the group of coating materials consisting
10 of a metal nitride, a metal oxide, a metal boride and a metal carbide.

18. A coated brake disk as recited in claim 17 wherein said a first
coating layer comprises an amorphous metal, said metal being selected from
the group of metals consisting of titanium, chromium, zirconium, aluminum
and alloys thereof.

15 19. A coated brake disk as recited in claim 17 wherein said Titanium
alloy is selected from the group of Titanium alloys consisting of Titanium – 6
Aluminum – 4 Vanadium and Titanium – 6 Aluminum – 2 Tin – 4
Molybdenum – 2 Zirconium.

20 20. A coated brake disk as recited in claim 16 wherein said surface
is substantially annularly shaped.